REMARKS

Reconsideration of this application in light of the present amendment and remarks is respectfully requested. In the present response, claims 1, 9, and 10 have been amended. Claims 1-12 remain pending in this application.

Formal matters

(1) The Drawings have been objected to under 37 CFR 1.84(p)(5) for including reference numbers not mentioned in the description. More specifically, FIG. 3 has been objected to because reference numbers 311,320 are not mentioned in the description.

In response, Applicant has presently amended FIG. 3 to delete any structure corresponding to reference numbers 311, 320. An appropriate replacement sheet for FIG. 3, which reflects those changes, is attached herein as an Appendix (one page) immediately following page 11 of this paper.

Accordingly, the Drawings are now believed to be in compliance with all formal requirements.

(2) Claim 10 has been amended (i.e., insertion of the word "one") in a formal manner in order to correct a minor typographical error (which has not been cited or objected to by Examiner). Additionally, as described in further detail herein, claim 10 has been amended (along with claims 1 and 9) in a substantive manner. No new matter has been introduced by the present amendments to claim 10.

Substantive matters

Claims 1-4 and 6-12 have been rejected under 35 USC 102(e) as being anticipated by Lagerblom (U.S. Patent 6,639,950). Claim 5 has been rejected under 35 USC 103(a) as being obvious over Lagerblom (U.S. Patent 6,639,950) in view of Rayne (UK Patent Publication GB 2348062A). These rejections are respectfully traversed, in view Applicant's present amendments to independent claims 1, 9, and 10, as well as Applicant's remarks regarding the teachings of the cited references and the contents of the pending claims.

(1) Applicant's remarks regarding the scope of the teachings of the cited references are given as follows:

(a) The Lagerblom reference appears to be relevant to the problem of Cartesian loop stability, and appears to teach an approach for phase training in the presence of at least some phase imbalance in Cartesian loop quadrature modulators. However, the Lagerblom reference appears to be silent as to performing accurate phase adjustment to overcome the specific problem of quadrature phase imbalance. Applicant notes, with emphasis, that the problem of performing accurate phase adjustments to overcome quadrature phase imbalance is one that is specifically addressed and overcome by Applicant's claimed invention. Therefore, the problems addressed by the Lagerblom reference and Applicant's invention are quite different. Additionally, Applicant's invention is directed to an approach for phase training when the Cartesian loop is open (as described in further detail below, each of independent claims 1, 9, and 10 have been presently amended in order to explicitly recite that limitation); Lagerblom's teachings, by contrast, appear to be limited to an approach for phase training when the Cartesian loop is closed.

(b) Regarding the Rayne reference, Examiner has correctly noted (at page 7, line 15 of the Office Action) that Rayne teaches (at page 15, lines 15-21) a method of transmitting different training signals spaced at regular intervals to a Cartesian loop RF amplifier. However, Applicant respectfully points out that the Rayne reference is not relevant to a key feature of Applicant's claimed invention. More particularly, Applicant points out that Rayne does not disclose an approach for performing accurate Cartesian loop phase training when there is an imbalance in the Cartesian loop quadrature modulators. More particularly, Rayne does not teach applying a training signal to an I channel of a Cartesian loop, performing a phase training on the I channel, applying a training signal to a Q channel of the Cartesian loop, and then performing a phase training on the Q channel.

(2) Applicant's remarks concerning the present amendments to independent claims 1, 9, and 10 are given as follows:

(a) Independent claims 1 and 9 have been presently amended to include the recitation "wherein said first and second training signals are applied by the processor while the first and second quadrature circuit loops are open." Independent claim 10 has been amended, along similar lines, to include the recitations "wherein said first training signal is applied while the first quadrature circuit loop is open" and "wherein said second training signal is applied while the second quadrature circuit loop is open." The aforementioned recitations are supported by Applicant's Specification (see, e.g., page 13, lines 15-19, and page 14, lines 8-11) as originally filed in this application, and have been added in order to render independent claims 1, 9, and 10 more clearly distinct and nonobvious over the cited references.

(b) The present invention (as recited in amended independent claims 1, 9, and 10,

as well as their associated dependent claims) is directed to an approach (encompassing apparatus in claims 1 and 9, and a method in claim 10) for performing accurate phase training of a Cartesian loop under conditions wherein at least some phase imbalance exists in the quadrature modulators of the Cartesian loop. As discussed in Applicant's disclosure, this phase training is desired so as to ensure stabile operation of the loop, and is achieved (according to Applicant's claimed invention) by performing phase training on an I channel, then performing phase training on a Q channel, and then, based upon the results of the phase trainings for the I and Q channels, applying a corrected phase to a phase shifter. Applicant respectfully submits that the aforementioned approach is neither disclosed nor suggested by any of the cited references, nor by any hypothetical combination of those references.

(c) Independent claim 1 is directed to a wireless communication unit having a linearised transmitter. Independent claim 9 is directed to a linearised transmitter integrated circuit. Independent claim 10 is directed to a method of training a linearised transmitter.

(3) Applicant's remarks concerning the patentability of the pending claims are given as follows:

(a) As presently amended, each of independent claims 1, 9, and 10 explicitly recites that the phase training (i.e., for the first and second quadrature circuit loops) occurs on an open-loop basis. This is in marked contrast with the teachings of Lagerblom, wherein any disclosed phase training occurs on a closed-loop basis. Accordingly, each of independent claims 1, 9, and 10 is believed to be distinct and nonobvious over Lagerblom on at least that basis.

(b) Claims 2-8 are dependent upon amended independent claim 1, and thereby include all limitations of claim 1. Thus, claims 2-8 are allowable upon at least the same basis as

claim 1. Moreover, claims 2-8 include additional limitations which, in combination with the limitations of claim 1, render those claims further distinct and nonobvious over the cited references. Accordingly, claims 2-8 are likewise deemed to be allowable.

(c) Claims 11-12 are dependent upon amended independent claim 10, and thereby include all limitations of claim 10. Thus, claims 11-12 are allowable upon at least the same basis as claim 10. Moreover, claims 11-12 include additional limitations which, in combination with the limitations of claim 10, render those claims further distinct and nonobvious over the cited references. Accordingly, claims 11-12 are likewise deemed to be allowable.

In summary, Applicant respectfully submits that claims 1-12 are distinct and nonobvious over the references of record, and are now in a condition for allowance.

In view of the foregoing amendment and remarks, passing of this case is now in order. Examiner is invited to contact Applicant's agent by telephone if such communication may be helpful in the further examination of this case. A Notice of Allowance is earnestly solicited.

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Respectfully submitted,

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